What is claimed is:

1. An annealing furnace, comprising:

a processing chamber configured to store a substrate;

a susceptor located in the processing chamber so as to load the substrate and having an auxiliary heater for heating the substrate at 650 °C or less, the susceptor having a surface being made of quartz;

a gas supply system configured to supply a gas required for a thermal processing on the substrate in parallel to a surface of the substrate;

a transparent window located on an upper part of the processing chamber facing the susceptor; and

a main heater configured to irradiate a pulsed light on the surface of the substrate to heat the substrate from the transparent window, the pulsed light having a pulse duration of approximately 0.1 ms to 200 ms and having a plurality of emission wavelengths.

2. The annealing furnace of claim 1, wherein the main heater is one of a flash lamp and a laser unit having a plurality of laser sources for irradiating with a light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2.

3. The annealing furnace of claim 1, wherein the gas supply system supplies at least one of an oxidation gas and a

nitridation gas for forming an insulating film on the substrate.

4. The annealing furnace of claim 1, wherein the emission wavelengths include ultraviolet components.

5. The annealing furnace of claim 3, wherein the gas supply system supplies one of a reduction gas and a gas containing halogen for removing a native oxide film formed on the substrate prior to supplying one of the oxidation gas and the nitridation gas.

6. A manufacturing apparatus, comprising:

a first cassette chamber to place a wafer cassette for storing a substrate;

a transfer chamber connected to the first cassette chamber, having a transfer robot for transferring the substrate;

a first processing apparatus having a first processing chamber connected to the transfer chamber and configured to store the substrate, a first susceptor located in the first processing chamber so as to load the substrate transferred by the transfer robot, a first introduction conduit supplying a first gas to a surface of the substrate, a first transparent window located on an upper part of the first processing chamber, and a first

main heater irradiating a pulsed light on the surface of the substrate to heat the substrate from the first transparent window, the pulsed light having a duration of approximately 0.1 ms to 200 ms and having a plurality of emission wavelengths; and

a second cassette chamber to place another wafer cassette storing the substrate transferred from the first processing apparatus by the transfer robot.

7. The manufacturing apparatus of claim 6, wherein the first main heater irradiates with a light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2.

8. The manufacturing apparatus of claim 6, wherein the first introduction conduit supplies at least one of an oxidation gas and a nitridation gas as the first gas for forming a first insulating film on the substrate.

9. The manufacturing apparatus of claim 6, further comprising:

a second processing apparatus having a second processing chamber connected to the transfer chamber and configured to store the substrate, a second susceptor located in the second processing chamber so as to load the substrate transferred by the transfer robot, a second

introduction conduit supplying a second gas to the surface of the substrate, a second transparent window located on an upper part of the second processing chamber, and a second main heater irradiating a light on the surface of the substrate to heat the substrate from the second transparent window and having a plurality of emission wavelengths.

10. The manufacturing apparatus of claim 9, wherein the second main heater irradiates the light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2.

11. The manufacturing apparatus of claim 9, wherein the introduction conduit supplies at least one of an oxidation gas and a nitridation gas for forming a second insulating film on the substrate.

12. The manufacturing apparatus of claim 6, wherein the emission wavelengths of the first main heater include ultraviolet components.

13. The manufacturing apparatus of claim 12, wherein the first introduction conduit supplies one of a reduction gas and a gas including halogen as the first gas for removing a native oxide film formed on the substrate.

14. An annealing method, comprising:

introducing at least one of an oxidation gas and a nitridation gas to a substrate loaded on a susceptor in a processing chamber; and

heating a surface of the substrate with a pulse duration of approximately 0.1 ms to 200 ms to perform at least one of oxidation and nitridation.

15. The annealing method of claim 14, wherein the heating is performed by irradiation of a light having an irradiation energy density in a range of approximately 5 J/cm^2 to 100 J/cm^2.

16. The annealing method of claim 15, wherein the irradiation of the light is performed for a plurality of times.

17. The annealing method of claim 15, wherein emission wavelengths of the light includes ultraviolet components.

18. The annealing method of claim 17, wherein the heating is performed after removing a native oxide film on the substrate by use of one of a reduction gas and a gas including halogen prior to the introduction of at least any one of the oxidation gas and the nitridation gas.

19. The annealing method of claim 14, wherein the surface of the substrate is heated to a temperature range of approximately 950 °C to 1200 °C when measured by a pyrometer.

20. The annealing method of claim 14, wherein the heating is selectively performed by aligning a stencil mask having an opening on an upper side of the substrate.

21. The annealing method of claim 14, wherein the heating is performed by doping one of halogen, oxygen and nitrogen to a portion of the substrate.

22. A manufacturing method of an electronic device, comprising:

cleaning a substrate by a wet processing;

loading the substrate on a first susceptor in a first processing apparatus;

introducing a first gas to the substrate loaded on the first susceptor; and

performing a first processing of at least one of oxidation and nitridation by heating a surface of the substrate with a pulse duration of approximately 0.1 ms to 200 ms.

23. The manufacturing method of claim 22, wherein the

heating of the first processing is performed by irradiating a first light having an irradiation energy density of approximately 5 J/cm^2 to 100 J/cm^2.

24. The manufacturing apparatus of claim 22, wherein the first processing is to form a first insulating film by use of at least one of an oxidation gas and a nitridation gas as the first gas.

25. The annealing method of claim 23, wherein the irradiation of the first light is performed for a plurality of times.

26. The manufacturing method of claim 22, wherein the surface of the substrate is heated to a temperature range of approximately 950 °C to 1200 °C when measured by a pyrometer.

27. The manufacturing method of claim 22, further comprising:

loading the substrate, which has been subjected to the first processing, on a second susceptor in a second processing apparatus;

introducing a second gas to the substrate loaded on the second susceptor; and

performing a second processing by heating the surface

of the substrate.

28. The manufacturing method of claim 27, wherein the heating of the second processing is performed by irradiating a second light with a pulse duration of approximately 0.1 ms to 200 ms having an irradiation energy density of approximately 5 J/cm2 to 100 J/cm2.

29. The manufacturing method of claim 27, wherein the second processing is to form a second insulating film by use of at least any one of an oxidation gas and a nitridation gas as the second gas.

30. The manufacturing method of claim 28, wherein the irradiation of the second light is performed a plurality of times.

31. The manufacturing method of claim 23, wherein emission wavelengths of the first light include ultraviolet components.

32. The manufacturing method of claim 31, wherein the first processing is to remove a native oxide film on the substrate by use of one of a reduction gas and a gas containing halogen as the first gas.

33. The manufacturing method of claim 27, wherein the surface of the substrate is heated by an irradiation of a second light to a temperature range of approximately 950 °C to 1200 °C when measured by a pyrometer.

34. The manufacturing method of claim 32, wherein the heating of the second thermal processing is performed by the irradiation from a main heater having a plurality of emission wavelengths.